1966 OPERATING SUMMARY

PORT COLBORNE

water pollution control plant

ONTARIO WATER RESOURCES COMMISSION

Division of Plant Operations

ONTARIO WATER RESOURCES COMMISSION

OFFICE OF THE GENERAL MANAGER

Members of the Port Colborne Local Advisory Committee,
City of Port Colborne.

Gentlemen:

We are pleased to submit to you the 1966 Operating Summary for the Port Colborne Water Pollution Control Plant, OWRC Project Nos. 59-S-47, 60-S-73 and 62-S-108.

It is hoped that our joint participation in efforts to combat water pollution comparisons with previous years where these are applicable and significant.

Yours very truly,

D. S. Caverly,
General Manager.

ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET

TORONTO 5

J. A. VANCE, LL.D.
CHAIRMAN

J. H. H. ROOT, M.P.P.
VICE-CHAIRMAN

D. S. CAVERLY
GENERAL MANAGER

W. S. MacDONNELL
COMMISSION SECRETARY

General Manager,
Ontario Water Resources Commission.

Dear Sir:

I am happy to present you with the 1966 Operating Summary for the Port Colborne Water Pollution Control Plant, OWRC Project Nos. 59-S-47, 60-S-73 and 62-S-108.

The report offers a concise summary of operating data for the year and comparisons with previous years where these are applicable and significant.

Yours very truly,

B. C. Palmer, P. Eng.,
Director,
Division of Plant Operations.

FOREWORD

● This operating summary contains complete information on the management of the project during 1966. It contains a concise review of the year's plant operation, significant financial details, and a visual presentation in graphs and charts of technical performance.

The information will be of value to interested parties in assessing the adequacy of the project at this time and its ability to meet future requirements.

The report is the result of co-operation by several groups within the Division of Plant Operations. These include the statistics section and the technical publications section. The Division of Finance and the draughting section of the Division of Sanitary Engineering were also closely associated with its publication.

The Regional Operations Engineer, however, has had the primary responsibility for the content, and will be happy to answer any questions regarding it.

CONTENTS

PORT COLBORNE

water pollution control plants

operated for

THE CITY OF PORT COLBORNE

by the

ONTARIO WATER RESOURCES COMMISSION

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DIVISION OF PLANT OPERATIONS

DIRECTOR: B. C. Palmer

Assistant Director: C. W. Perry
Regional Supervisor: A. C. Beattie
Operations Engineer: R. S. McKittrick

801 Bay Street Toronto 5

'66 REVIEW

The operating cost per million gallons increased in 1966 due to a reduction in metered flow to the East Side plant. The cost per million gallons rose from $88.17 in 1965 to $96.46 in 1966. This is an increase of 10.5%.

Secondary treatment was provided for a total of 682.9 million gallons of raw sewage in 1966. This is a decrease of 6.7% in relation to the 1965 total flow. Considering the plants individually there was an increase of 3.2% in total flow at the West Side plant and a decrease in total flow of 15.6% at the East Side plant. The dry weather flow capacity at the West Side plant was exceeded 47% of the time. However this has not yet seriously affected the degree of treatment achieved at the plant. As in previous years, during periods of heavy surface runoff there was considerable bypassing of raw sewage at the East Side plant.

SEWAGE STRENGTHS

The raw sewage strengths at both plants were again below that normally anticipated for domestic sewage. This is an indication of excessive infiltration to the sewers or an uneconomical use of water by residents in the City resulting in considerable wasting to the sewers. The degree of efficiency achieved at the West Side plant was satisfactory during the past year with OWRC effluent quality objectives of 15 ppm BOD and suspended solids exceeded 17% and 9% of the time respectively. The East Side plant exceeded OWRC objectives for BOD and suspended solids 50% and 60% of the time respectively.

The physical condition of the East Side plant remained well below OWRC standards. As in past years there was again a major breakdown of one mechanical aerator during the winter which it is believed was caused by excessive deflection of the reinforced concrete support bridges. Repairs to equipment are on a breakdown basis with breakdowns becoming more frequent as the equipment and structures deteriorate. There has been no attempt to install chlorination facilities for disinfection of the effluent.

The routine maintenance at the West Side plant and satellite pumping stations was satisfactory, with no outstanding deficiencies noted at the year's end.

Due to excessive flow to the Fretz Park pumping station during periods of high surface runoff, it was recommended to the municipality during the past year the the Reserve Fund be utilized to install a third pump. This matter was referred to the City's consultant for comment and no decision has been reached to date.

Plant supervision was on a 24 hour basis, 7 days per week. The plant staff complement consists of six operators, one mechanic and a chief operator.

PROJECT COSTS

59-S-47

NET CAPITAL COST (Final) Long Term Debt to OWRC	$625,008.36
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1966	$ 71,956.93
Net Operating	$ 65,868.62
Debt Retirement	12,613.00
Reserve	3,693.36
Interest Charged	35,164.41
Total	$117,339.39

RESERVE ACCOUNT

Balance at January 1, 1966	$ 19,778.68
Deposited by Municipality	3,693.36
Interest Earned	1,176.55
Less Expenditures	-
Balance at December 31, 1966	$ 24,648.59

NET CAPITAL COST (Final)	$325,199.95
DEDUCT - Portion Financed by CMHC (Final)	47,154.39
Long Term Debt to OWRC	$278,045.56
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1966	$ 44,019.32
Net Operating	$ 96.13
Debt Retirement	10,088.00
Reserve	2,066.35
Interest Charged	15,643.50
TOTAL	$ 27,893.98

RESERVE ACCOUNT

Balance at January 1, 1966	$ 7,547.58
Deposited by Municipality	2,066.35
Interest Earned	463.00
	$ 10,076.93
Less Expenditures	-
Balance at December 31, 1966	$ 10,076.93

NET CAPITAL COST (Final)		$291,992.10
DEDUCT - Portion Financed by CMHC (Final)	$78,293.33	
- Payments from Municipalities	87,025.24	165,318.57
Long Term Debt to OWRC		$126,673.53
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1966		$ 14,981.55
Net Operating		$ 49.99
Debt Retirement		4,596.00
Reserve		1,408.38
Interest Charged		7,126.96
TOTAL		$ 13,181.33

RESERVE ACCOUNT

Balance at January 1, 1966	$ 3,172.62
Deposited by Municipality	1,408.38
Interest Earned	206.59
	$ 4,787.59
Less Expenditures	-
Balance at December 31, 1966	$ 4,787.59

MONTHLY OPERATING COSTS

MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	* SUNDRY	WATER
JAN	5292.80	3226.13		322.74	874.83		107.33	105.06	71.96	584.75	
FEB	3657.81	3131.44		95.48			110.72		126.63	154.62	38.92
MARCH	6122.75	3232.26		276.91	1756.22	291.24	225.97		145.35	194.80	
APRIL	5694.79	4877.05		120.06			190.78		295.02	211.88	
MAY	4834.47	3232.35		72.88	790.57	228.38	173.35		57.01	211.47	68.46
JUNE	5980.23	3515.32		158.98	1482.13		196.53	206.41	39.64	371.22	
JULY	4480.34	3178.95		17.18	694.19		180.14		228.95	180.93	
AUG	4956.60	3588.72		30.38	734.67	223.38	196.54			129.41	48.50
SEPT	8233.30	5600.49	168.57	49.40	728.50	228.38	760.86		306.60	395.50	
OCT	5204.86	3276.02	294.39	44.23	703.15	(15.95)	249.97			653.05	
NOV	5752.83	3175.59	674.06	162.71	820.34	228.38	239.65		32.65	325.39	93.56
DEC	5652.84	3113.49	352.18	161.52	951.24		166.61		30.10	877.70	
TOTAL	65868.62	43147.81	1489.20	1522.47	9536.34	1188.81	2798.45	311.47	1333.91	4290.72	249.44

* SUNDRY INCLUDES SLUDGE HAULING COSTS WHICH WERE $1753.92

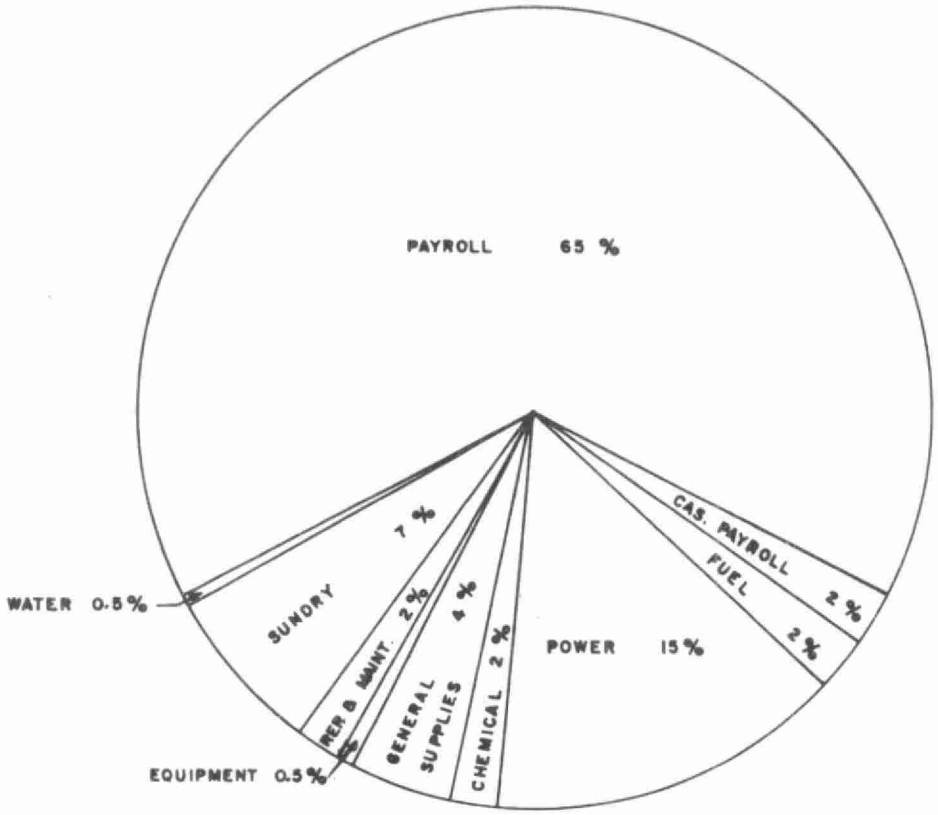
BRACKETS INDICATE CREDIT

YEARLY OPERATING COSTS

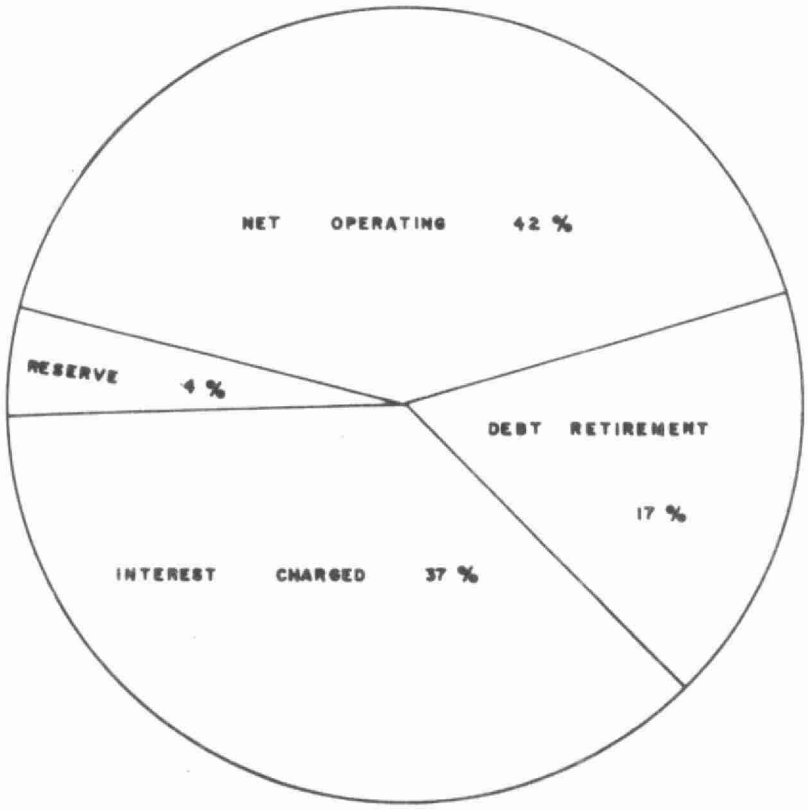
YEAR	M.G. TREATED	TOTAL COST	COST PER FAMILY PER YEAR	COST PER MILLION GALLONS	COST PER L.B. OF BOD REMOVED
1962	297.053	$ 56400.48	* $ 14.70	$189.86	22 CENTS
1963	336.397	60754.91	15.72	180.60	21 CENTS
1964	425.527	57818.45	12.95	135.88	17 CENTS
1965	731.513	64498.43	14.59	88.17	11 CENTS
1966	682.856	65868.62	14.66	96.46	13 CENTS

* BASED ON ANNUAL POPULATION ESTIMATE AND 3.9 PERSONS PER FAMILY

1966 OPERATING COSTS



TOTAL ANNUAL COST (ALL PROJECTS)



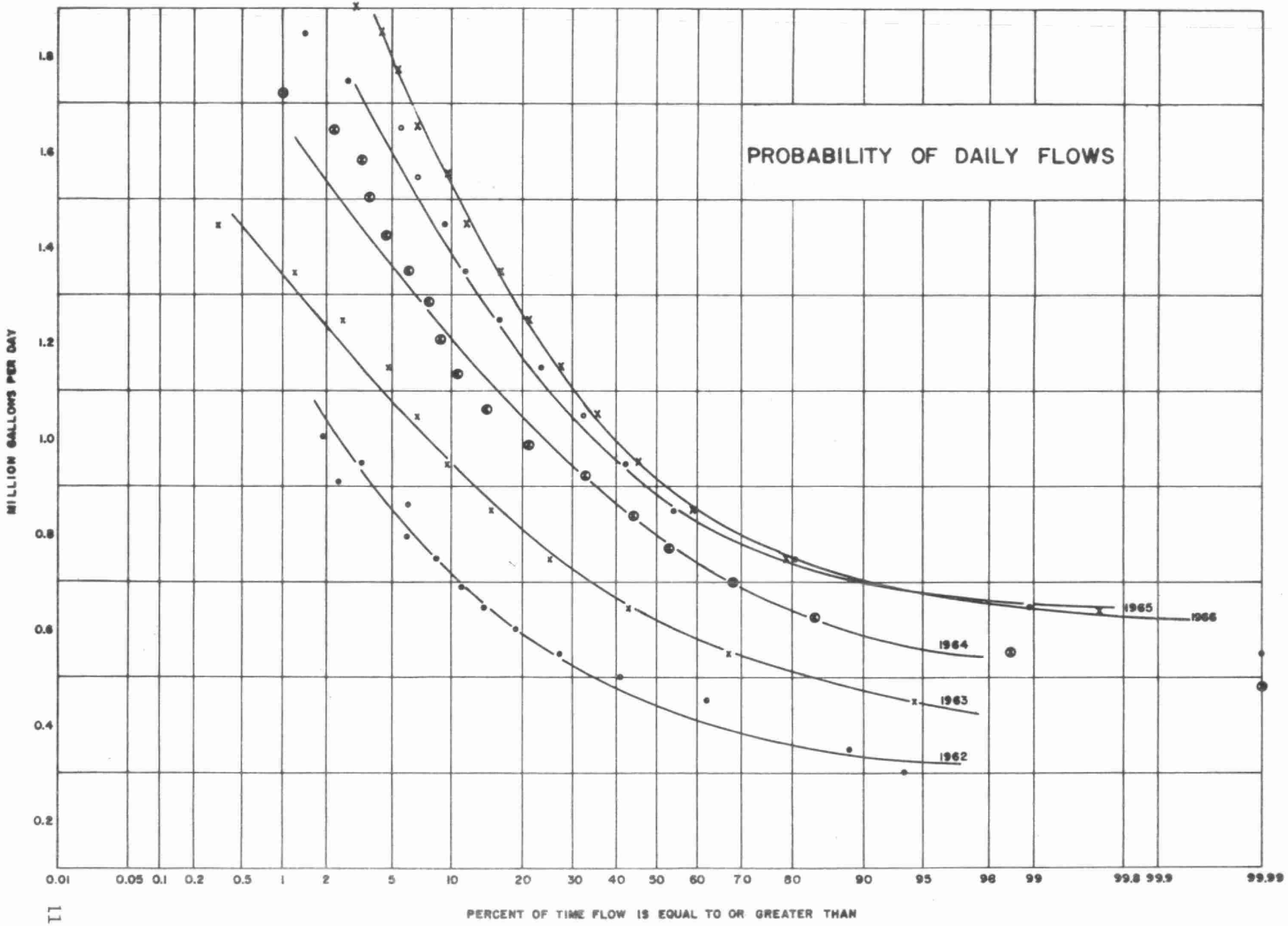
Process Data

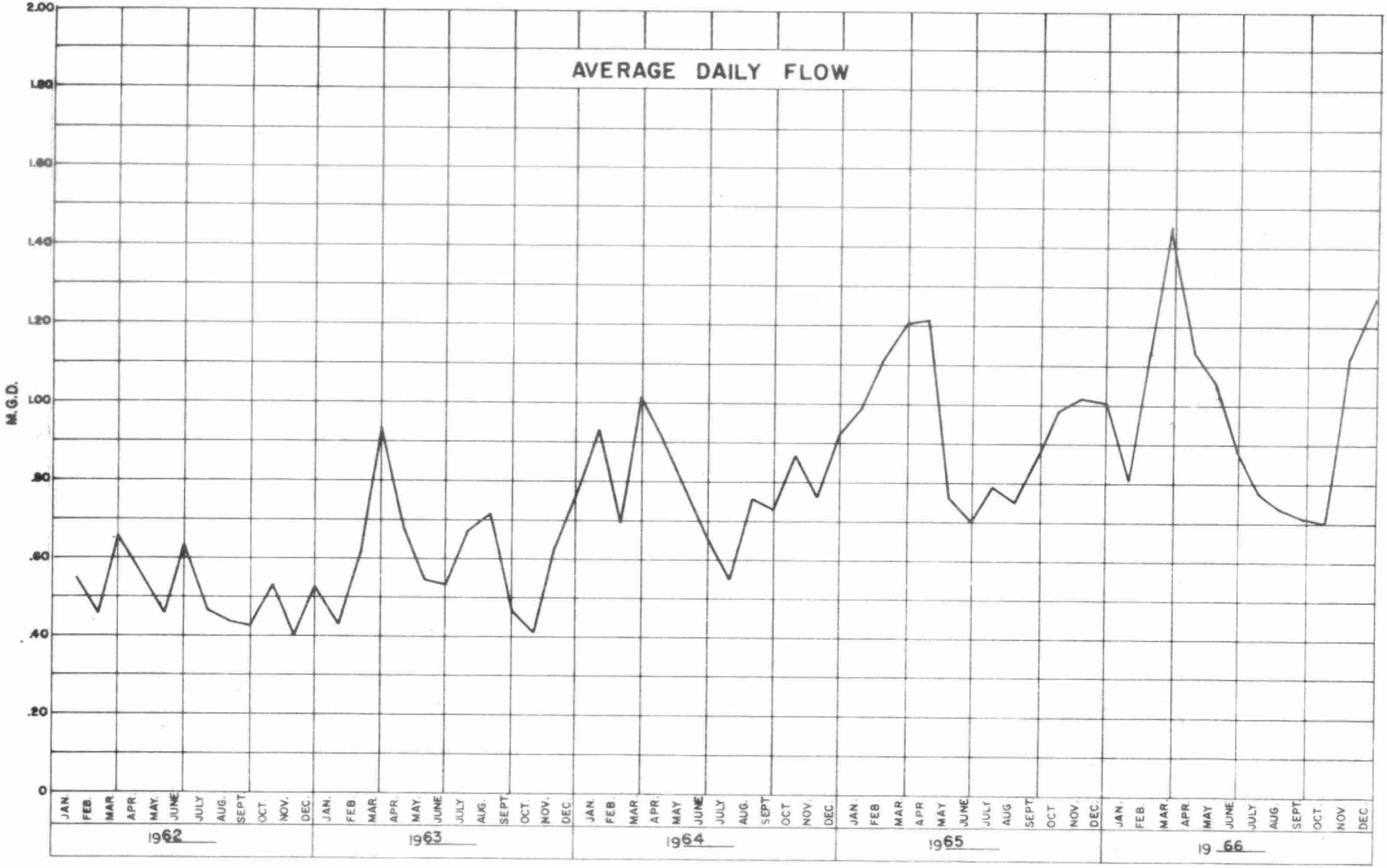
GENERAL

The following data provide information regarding the flows treated by the two Port Colborne Water Pollution Control plants, the degree of treatment achieved, the digester performance and in the case of the West Side plant the chlorine dosages required to maintain a safe residual.

FLOW -- WEST SIDE PLANT

During 1966 a total of 357.337 million gallons of sewage was given secondary treatment. This is an increase of approximately 3.2% over the 1965 flow. The average daily flow of 0.98 million gallons is slightly over the design dry weather hydraulic capacity of the plant. The maximum average daily flow for one month was 1.454 million gallons and occurred in March. In referring to the graph on probability of daily flows it will be noted that the design dry weather flow at the West Side plant was exceeded 47% of the time. Much of this overloading is due to the existence of combined sewers in the older section of the City. This overloading, although an undersirable feature, is not yet seriously affecting the degree of treatment being achieved at the plant.

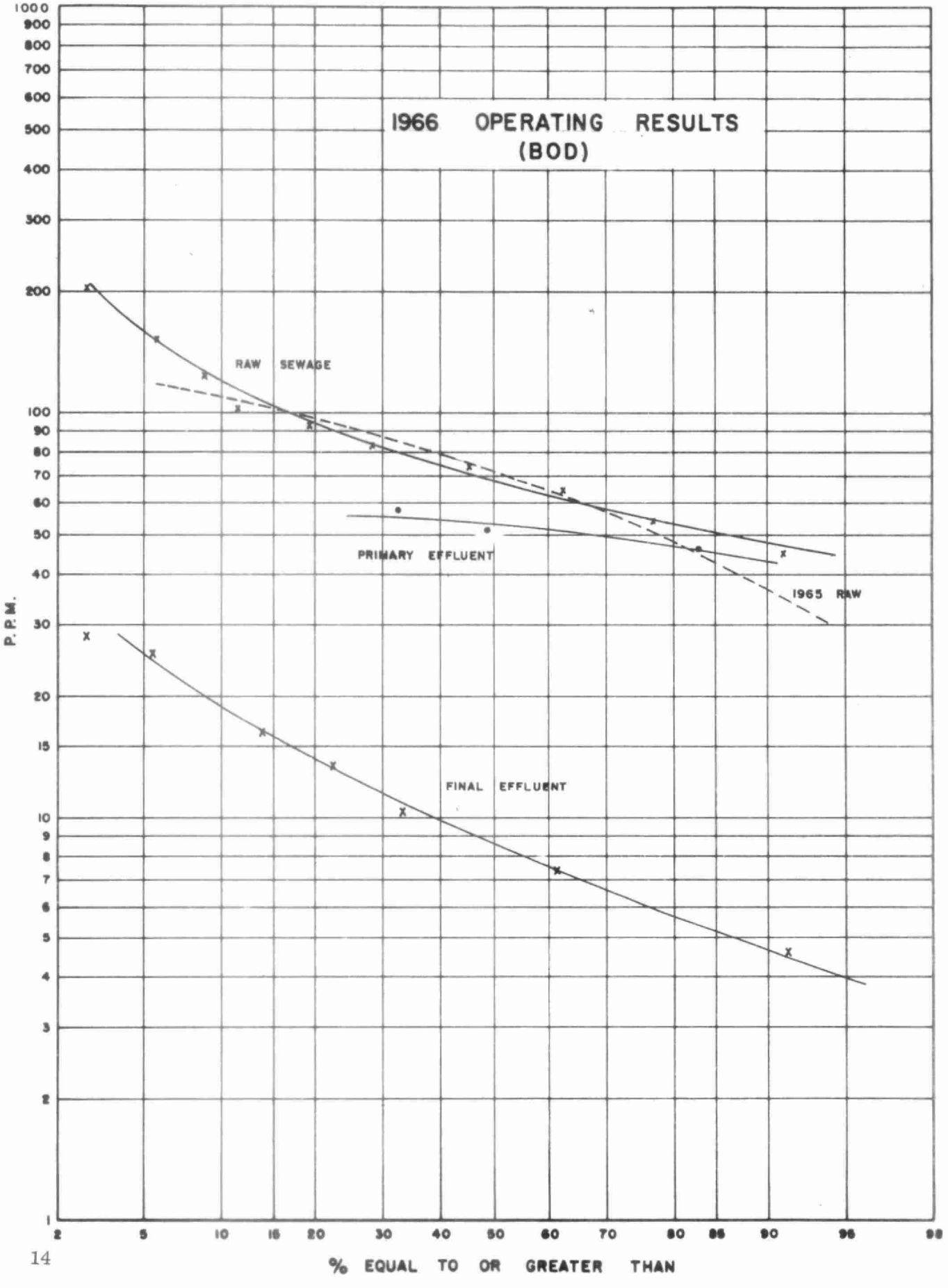

PROBABILITY OF DAILY FLOWS
MILLION GALLONS PER DAY
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.01
0.05
0.1
0.2
0.5
1
2
5
10
20
30
40
50
60
70
80
90
95
98
99
99.8
99.9
99.99
1965
1966
1964
1963
1962
PERCENT OF TIME FLOW IS EQUAL TO OR GREATER THAN

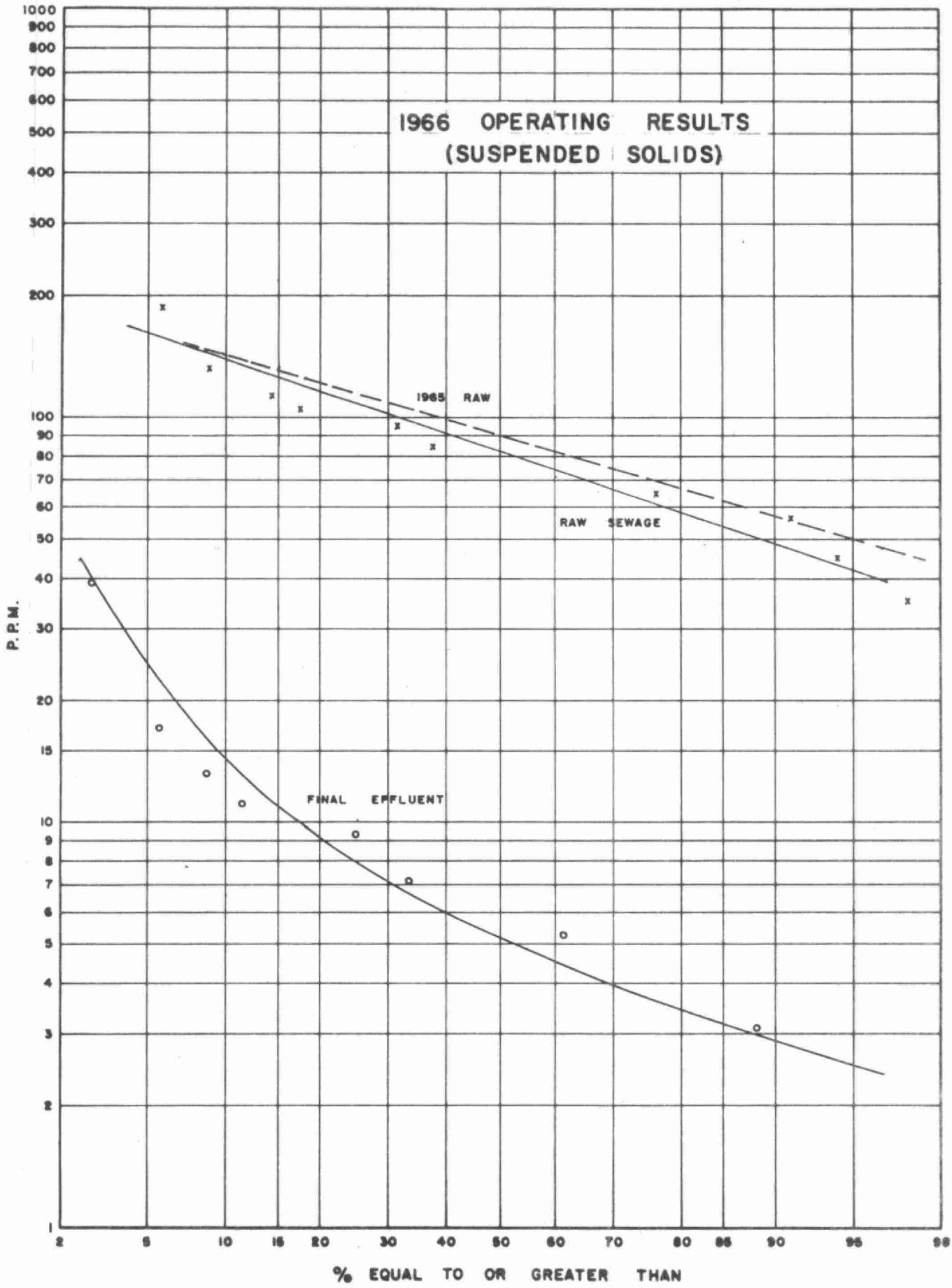

AVERAGE DAILY FLOW
M.G.D.
2.00
1.80
1.60
1.40
1.20
1.00
.80
.60
.40
.20
0
JAN. FEB. MAR. APR. MAY. JUNE JULY AUG. SEPT. OCT. NOV. DEC.
1962
1963
1964
1965
1966

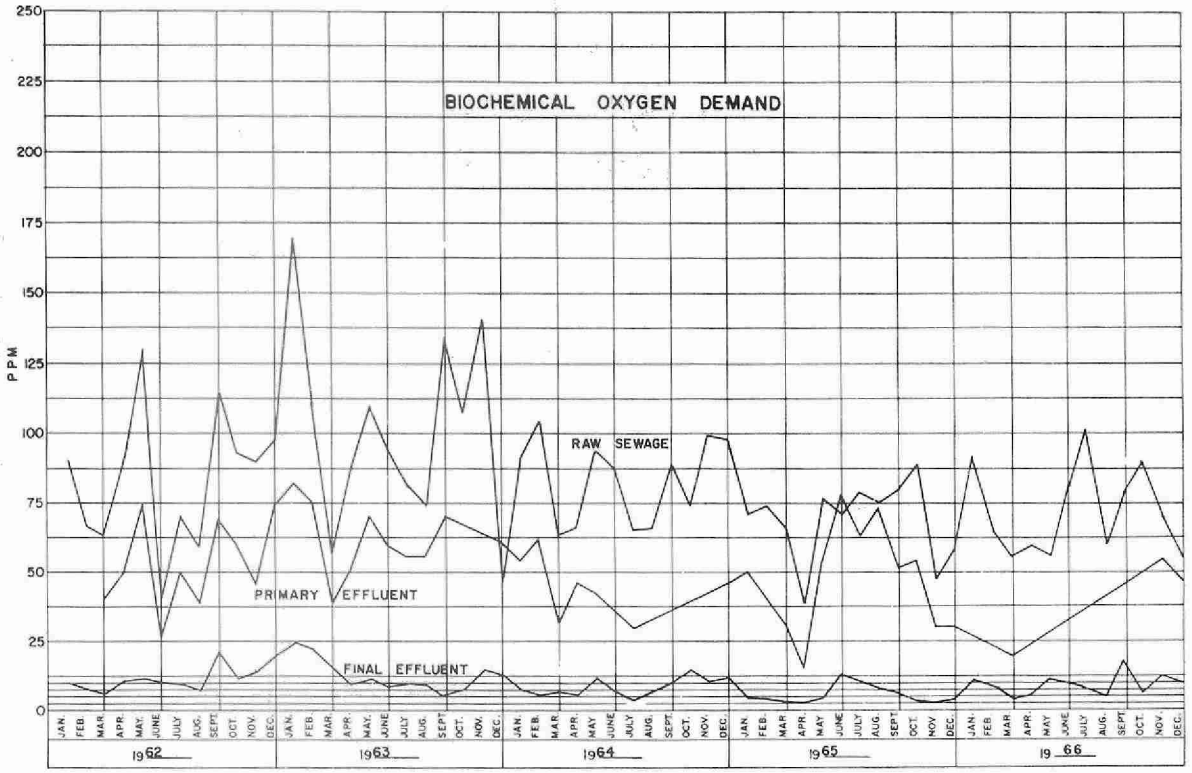
FLOW SUMMARY

(WEST SIDE PLANT)

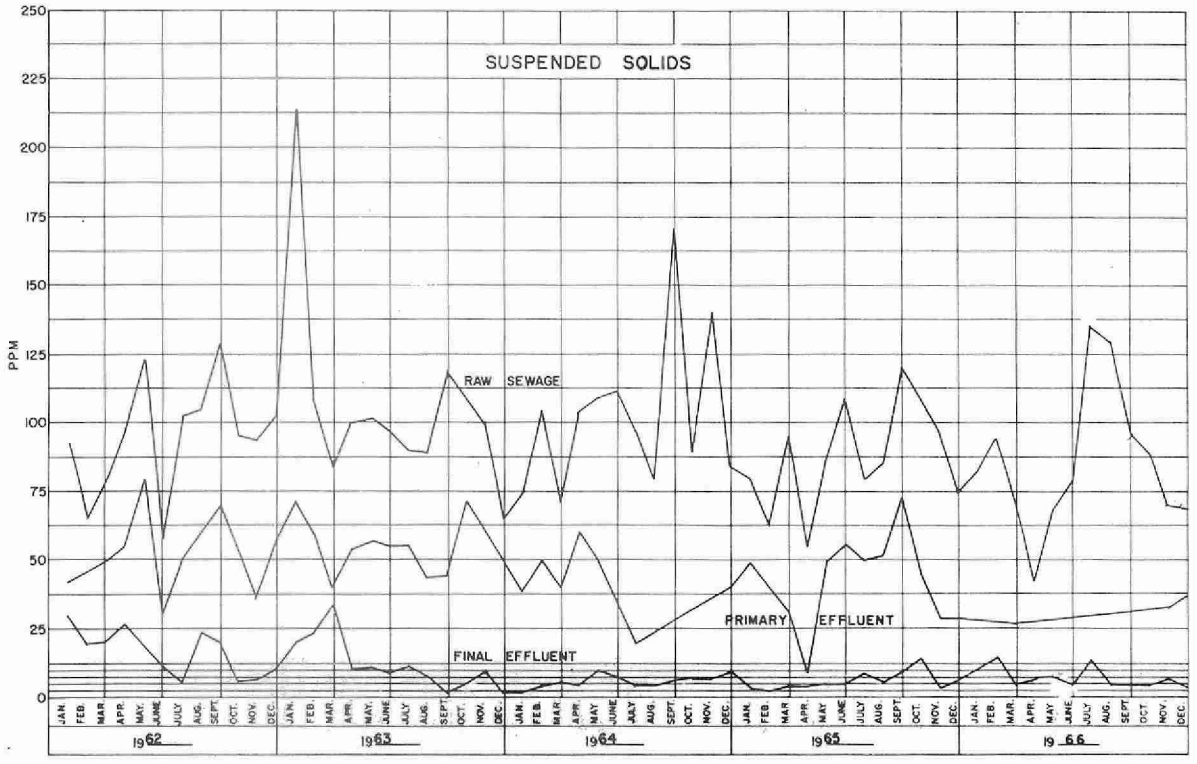
Month	Total Flow MG	Max. Day Flow MG	Average Daily Flow MG	Max. Rate Flow MG	Min. Day Flow MG
January	24.810	1.281	0.800	1.500	0.604
February	31.275	2.228	1.117	2.000	0.640
March	45.072	2.066	1.454	3.000	1.013
April	34.166	2.077	1.139	2.100	0.865
May	33.025	1.566	1.065	1.600	0.772
June	26.400	1.376	0.880	1.250	0.719
July	23.737	0.919	0.766	3.400	0.666
August	22.719	0.963	0.733	1.200	0.627
September	21.463	0.985	0.715	1.400	0.577
October	21.704	0.911	0.700	1.750	0.633
November	33.838	1.982	1.128	2.000	0.711
December	39.128	2.297	1.262	2.500	0.762
Total	357.337	-	-	-	-
Average	29.778	-	-	-	-


1966 OPERATING RESULTS
(BOD)
RAW SEWAGE
PRIMARY EFFLUENT
1965 RAW
FINAL EFFLUENT
P.P.M.
% EQUAL TO OR GREATER THAN
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
15
10
9
8
7
6
5
4
3
2
1
2
5
10
15
20
30
40
50
60
70
80
85
90
95
98


1966 OPERATING RESULTS
(SUSPENDED SOLIDS)
1965 RAW
RAW SEWAGE
FINAL EFFLUENT
P.P.M.
% EQUAL TO OR GREATER THAN
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
15
10
9
8
7
6
5
4
3
2
1
2
5
10
15
20
30
40
50
60
70
80
85
90
95
98



MONTHLY VARIATIONS



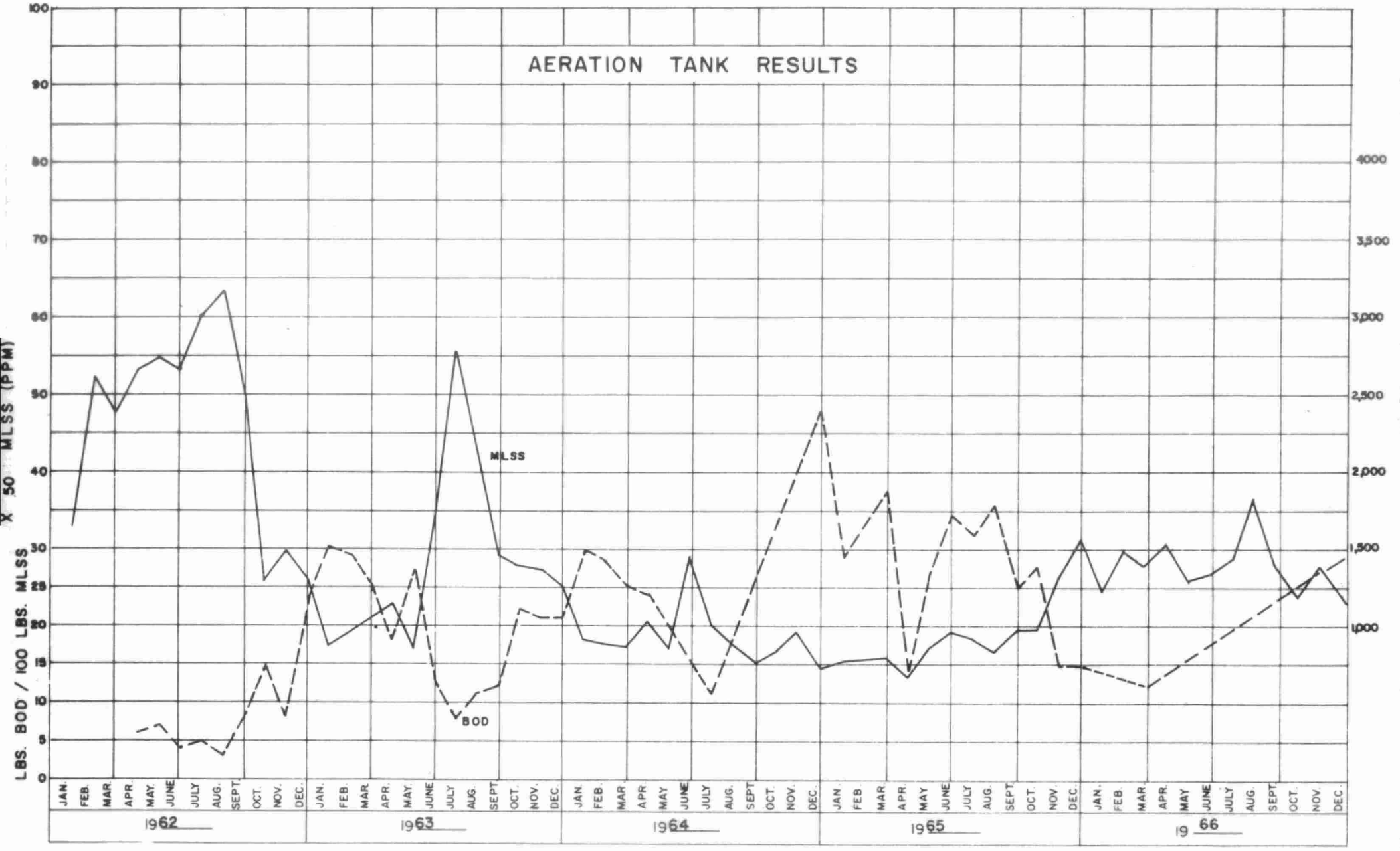
GRIT, B.O.D AND S.S. REMOVAL

MONTH	B. O. D.				S. S.				GRIT REMOVAL CU. FT.
	INFLUENT P.P.M.	EFFLUENT P.P.M.	% REDUCTION	TONS REMOVED	INFLUENT P.P.M.	EFFLUENT P.P.M.	% REDUCTION	TONS REMOVED	
JAN.	92	10	89.0	10.2	81	10	87.5	8.8	6
FEB.	64	8	87.5	8.8	94	14	85.1	12.5	-
MAR.	55	3	94.5	11.7	70	4	94.5	14.9	10
APR.	58	5	91.5	9.0	42	5	88.0	6.3	-
MAY	55	10	82.0	7.4	67	6	91.0	10.1	6
JUNE	80	8	90.0	9.5	77	4	95.0	9.6	-
JULY	100	7	93.0	11.0	134	12	91.0	14.5	8
AUG.	59	4	93.5	6.2	128	4	97.0	14.1	4
SEPT.	78	17	78.0	6.5	96	4	96.0	9.9	9
OCT.	89	6	93.0	9.0	88	4	95.5	9.1	4
NOV.	68	12	82.5	9.5	69	6	91.5	10.6	14
DEC.	55	9	83.5	8.3	68	3	95.5	11.7	-
TOTAL	-	-	-	112.6	-	-	-	139.4	61
AVG.	71	8	88.5	9.4	84	6	93.0	11.6	5

COMMENTS

The biochemical oxygen demand (BOD) and Suspended Solids (SS) of the raw sewage received at the West Side plant are once again below normal for domestic sewage. The average strength of the raw sewage in 1966 is on the basis of the sampling program, almost identical to that of 1965. It is because of these relatively low loadings that the plant is capable of handling hydraulic loadings which exceed the DWF design for the plant. The average removal efficiencies of 88.5% BOD and 85% SS are adequate. Average concentrations of 8 ppm BOD and 6 ppm SS are well within the OWRC objectives of 15 ppm.

The grit removal from the raw sewage was once again very low. However as pointed out before this is not uncommon in systems where there are flat sewers and multiple raw sewage pumping.

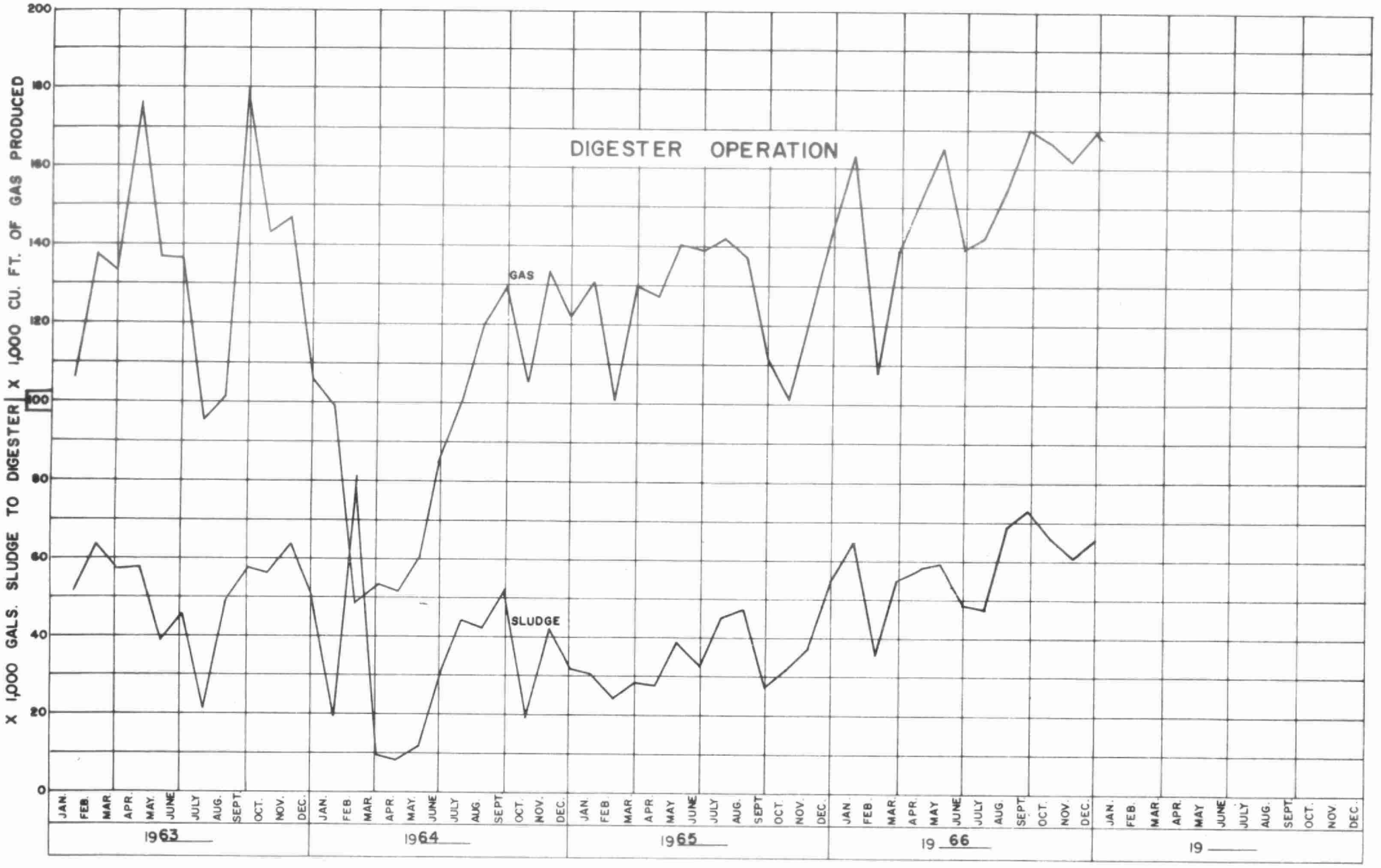

AERATION TANK RESULTS
LBS. BOD / 100 LBS. MLSS
X 50 MLSS (PPM)
MLSS
BOD
100
90
80
70
60
50
40
30
25
20
15
10
5
0
4000
3,500
3,000
2,500
2,000
1,500
1,000
JAN. FEB. MAR. APR. MAY. JUNE JULY AUG. SEPT. OCT. NOV. DEC.
1962
1963
1964
1965
19 66

AERATION SECTION

MONTH	PRIM. EFFL. B.O.D. P.P.M.	M.L.S.S. P.P.M.	LBS. BOD. PER 100 LBS. M. L. S. S.
JANUARY	-	1212	-
FEBRUARY	-	1460	-
MARCH	19	1394	12
APRIL	-	1525	-
MAY	-	1285	-
JUNE	-	1326	-
JULY	-	1415	-
AUGUST	-	1825	-
SEPTEMBER	-	1364	-
OCTOBER	-	1164	-
NOVEMBER	54	1358	27
DECEMBER	47	1175	28
TOTAL	-	-	-
AVERAGE	40	1375	22

COMMENTS

Due to low organic loadings only one third of the aeration section was operated in 1966. The mixed liquor suspended solids was increased to an average 1375 ppm.


DIGESTER OPERATION
X 1,000 GALS. SLUDGE TO DIGESTER | X 1,000 CU. FT. OF GAS PRODUCED
200
180
160
140
120
100
80
60
40
20
0
GAS
SLUDGE
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
1963
1964
1965
19 66
19

DIGESTER OPERATION

MONTH	SLUDGE TO DIGESTERS			SLUDGE FROM DIGESTERS			GAS PRODUCED 1000'S Cu. Ft.
	1000'S CU. FT.	% SOLIDS	% VOL. MAT.	1000'S CU. FT.	% SOLIDS	% VOL. MAT	
JAN.	10.54	4.00	3.00	1.60	-	-	163.66
FEB.	5.70	4.16	3.08	1.60	-	-	107.95
MAR.	8.87	4.02	2.92	1.60	-	-	139,13
APR.	9.38	3.90	2.85	2.88	-	-	152.43
MAY	9.56	3.70	2.67	3.20	-	-	165.27
JUNE	7.69	4.36	3.22	4.81	4.20	2.36	139.86
JULY	7.55	4.63	3.52	1.60	4.00	2.28	143.18
AUG.	11.02	4.22	2.97	6.41	4.40	2.55	155.68
SEPT.	11.76	2.93	2.58	4.81	4.00	2.32	170.02
OCT.	10.56	3.96	2.96	1.60	-	-	167.17
NOV.	9.73	4.22	3.18	2.24	-	-	162.33
DEC.	10.53	4.22	3.09	4.49	3.30	2.01	168.71
TOTAL	112.89	-	-	36.84	-	-	1835.39
AVG.	9.41	4.04	3.00	3.07	3.98	2.30	152.95

COMMENTS

A total of 112,890 cubic feet of raw sludge was pumped to the digesters during 1966. The average solids content of 4.04% is an indication of the reduced detention times in the primary clarifiers during high flow periods. The raw sludge pumpage is an increase of 64% over the 1965 total pumpage.

The gas production was again increased in 1966.

The reasons for the marked increase in raw sludge pumpage and gas production are unclear. On the basis of the sampling program there was no appreciable increase in organic content in the raw sewage. Also the 1966 flows were only marginally greater than the 1965 figures.

CHLORINATION

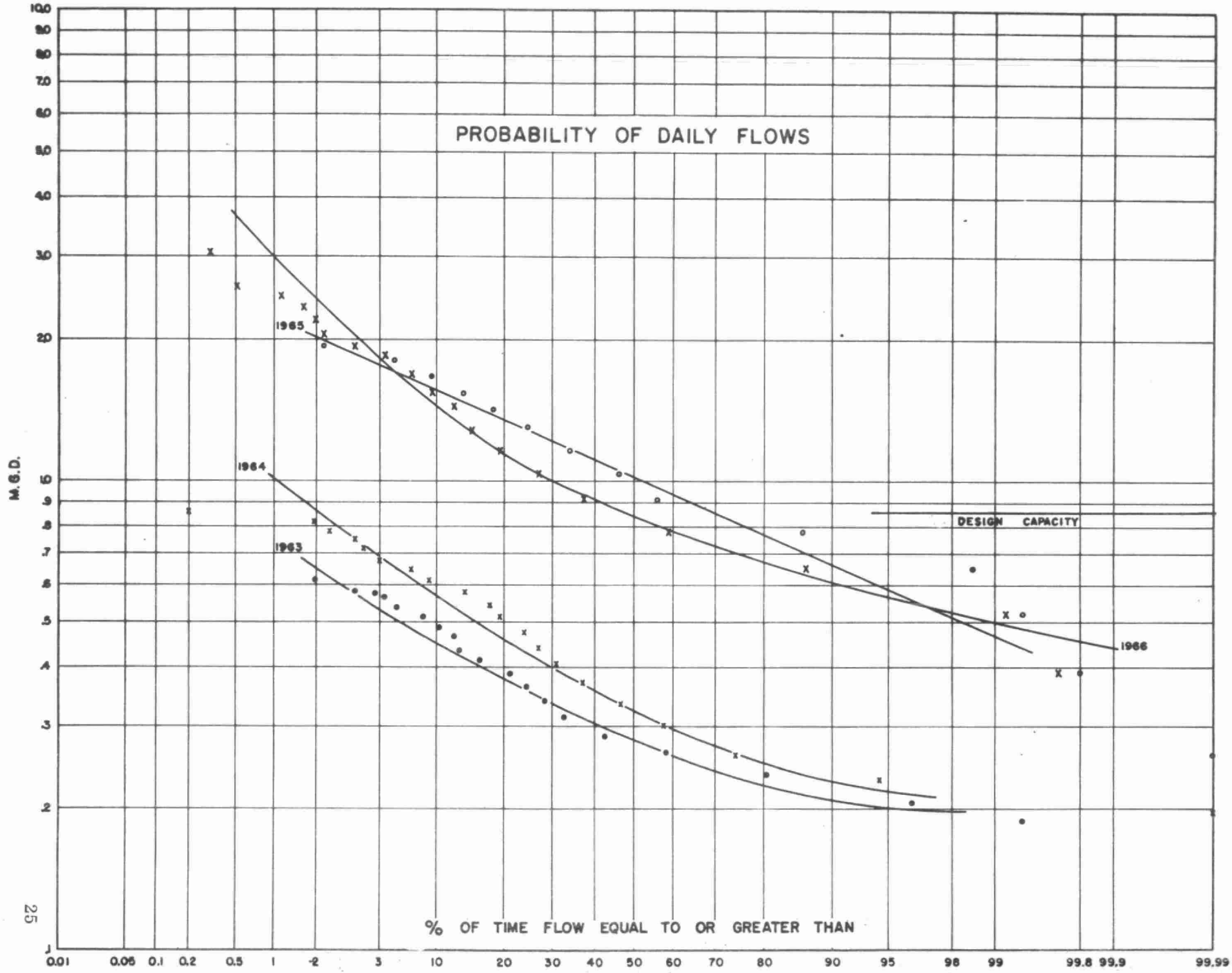
MONTH	PLANT FLOW (MG)	POUNDS CHLORINE	DOSAGE RATE (PPM)
JANUARY	24.180	509	2.05
FEBRUARY	31.275	531	1.70
MARCH	45.072	681	1.51
APRIL	34.166	513	1.50
MAY	33.025	551	1.67
JUNE	26.400	622	2.36
JULY	23.737	1012	4.26
AUGUST	22.719	677	2.98
SEPTEMBER	21.463	766	3.57
OCTOBER	21.704	630	2.90
NOVEMBER	33.838	667	1.97
DECEMBER	39.128	680	1.74
TOTAL	357.337	7839	-
AVERAGE	29.778	653	2.19

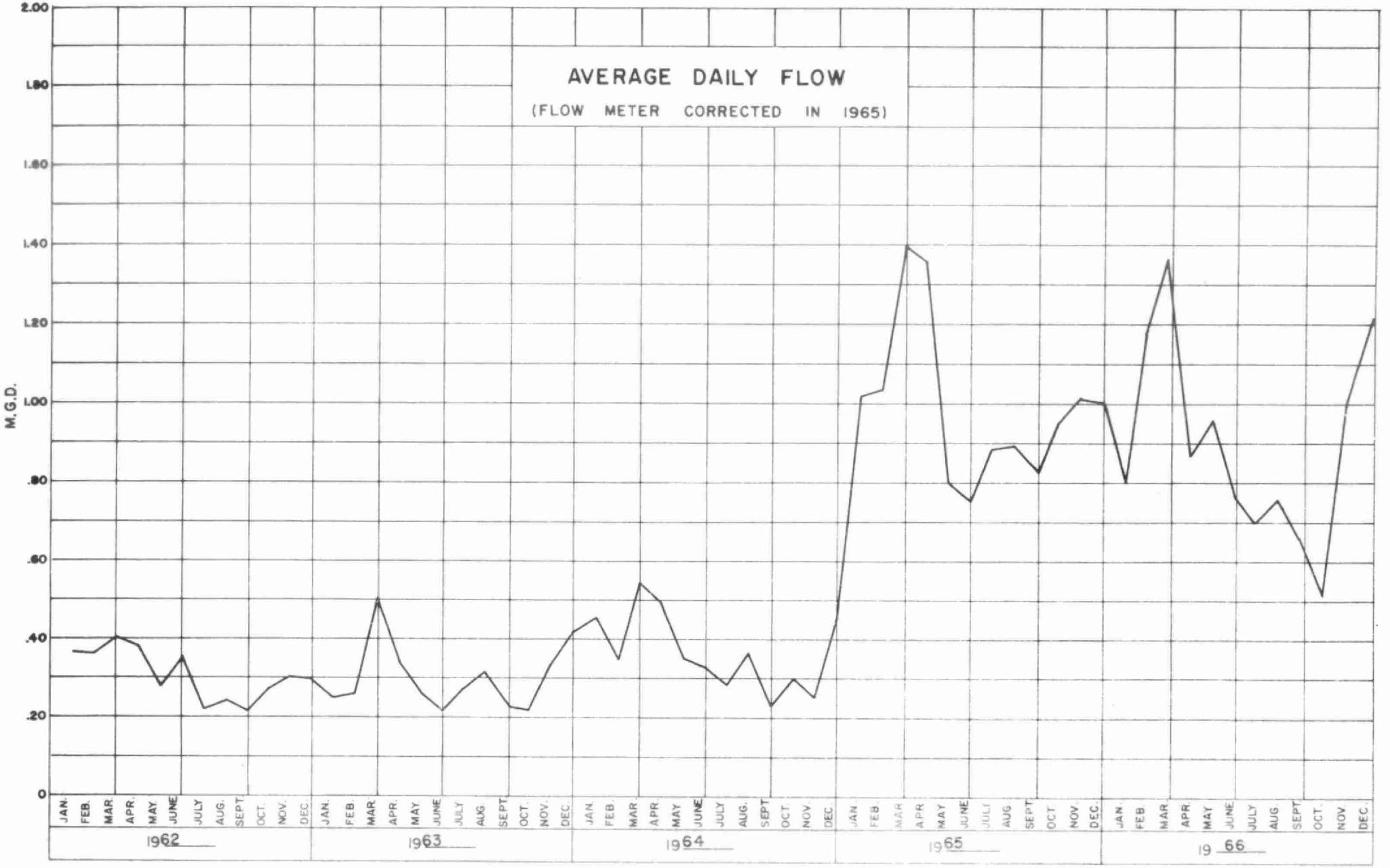
COMMENTS

Chlorination for disinfection of the final effluent is practiced for the entire year at this plant. An average residual after 15 minutes of 0.6 ppm is maintained in order to ensure adequate disinfection.

FLOW -- EAST SIDE PLANT

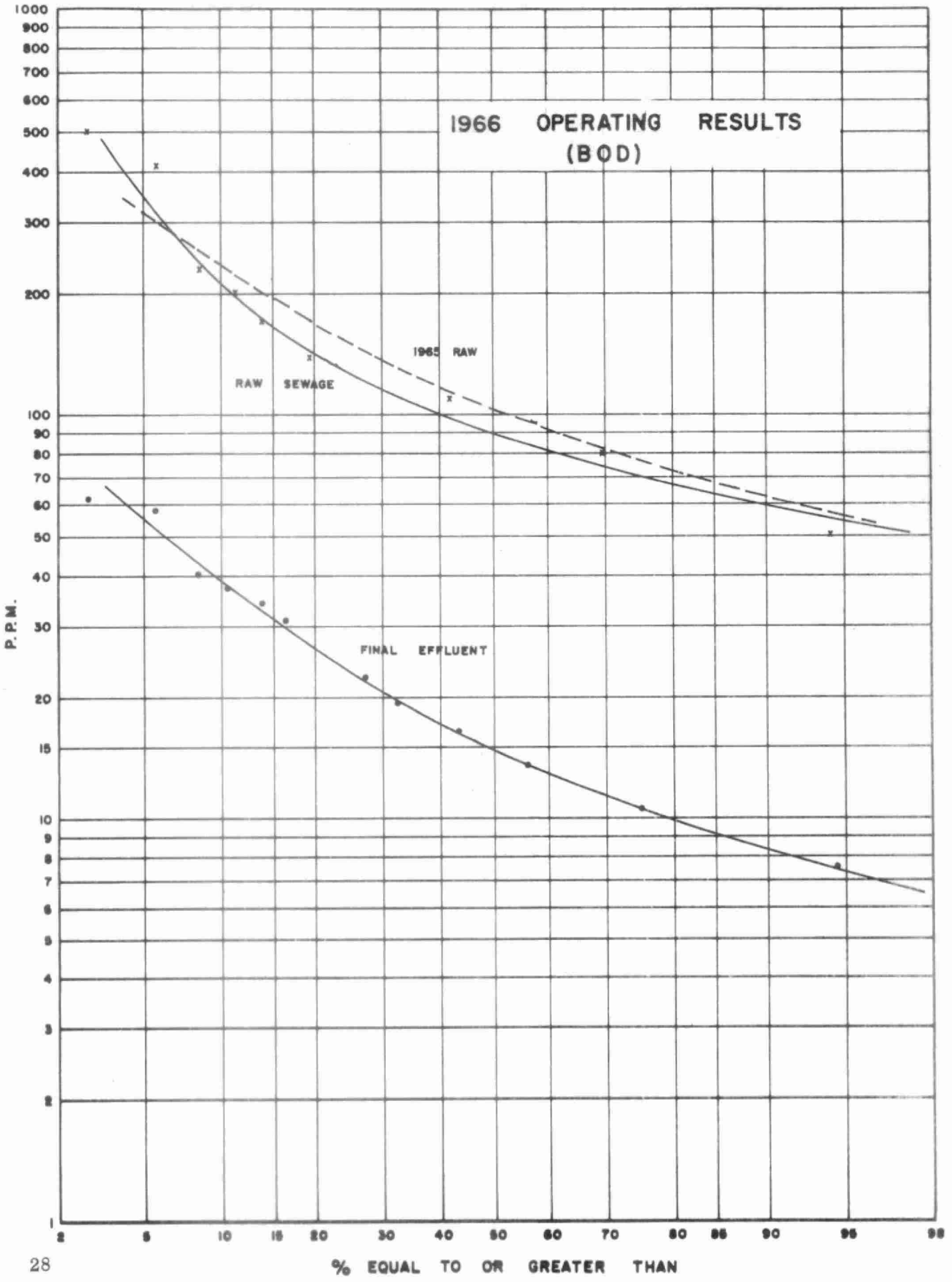
During 1966 a total of 325.519 million gallons was given secondary treatment at the East Side plant. This is a decrease of 15.6% in relation to the 1965 total flow. The average daily flow for the year was 0.89 million gallons and the maximum average daily flow for one month of 1.368 million gallons occurred in March. As in previous years there was considerable by-passing of raw sewage directly to the canal during periods of flow in excess of the capabilities of the plant. Much of the very high flow originates from the Fretz Park area. During periods of heavy precipitation the pumping equipment at the Fretz station is hard pressed to keep up with inflow rates.

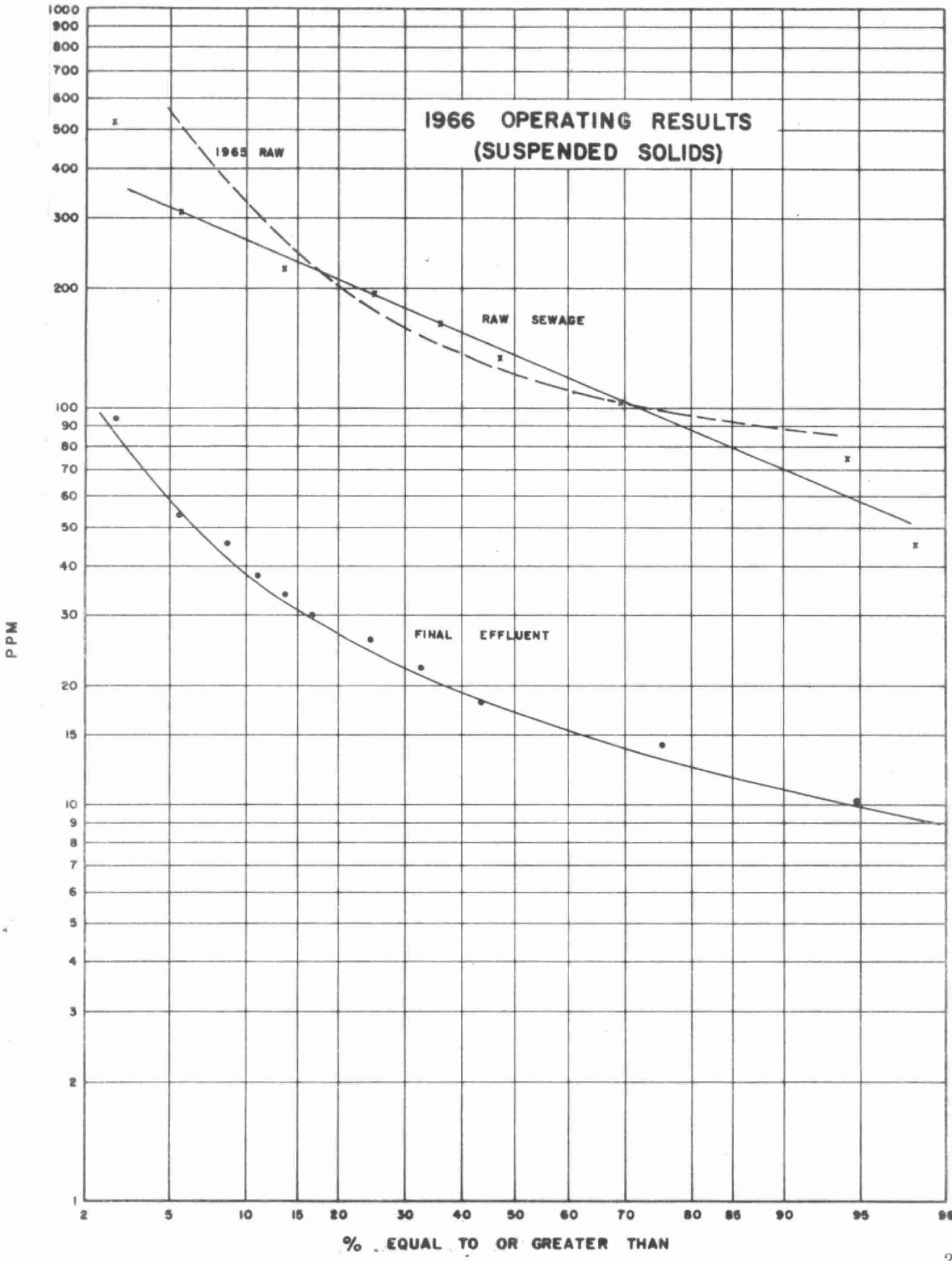

PROBABILITY OF DAILY FLOWS
M.G.D.
1965
1964
1963
1966
DESIGN CAPACITY
% OF TIME FLOW EQUAL TO OR GREATER THAN
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
0.01
0.05
0.1
0.2
0.5
1
2
3
10
20
30
40
50
60
70
80
90
95
98
99
99.8
99.9
99.99

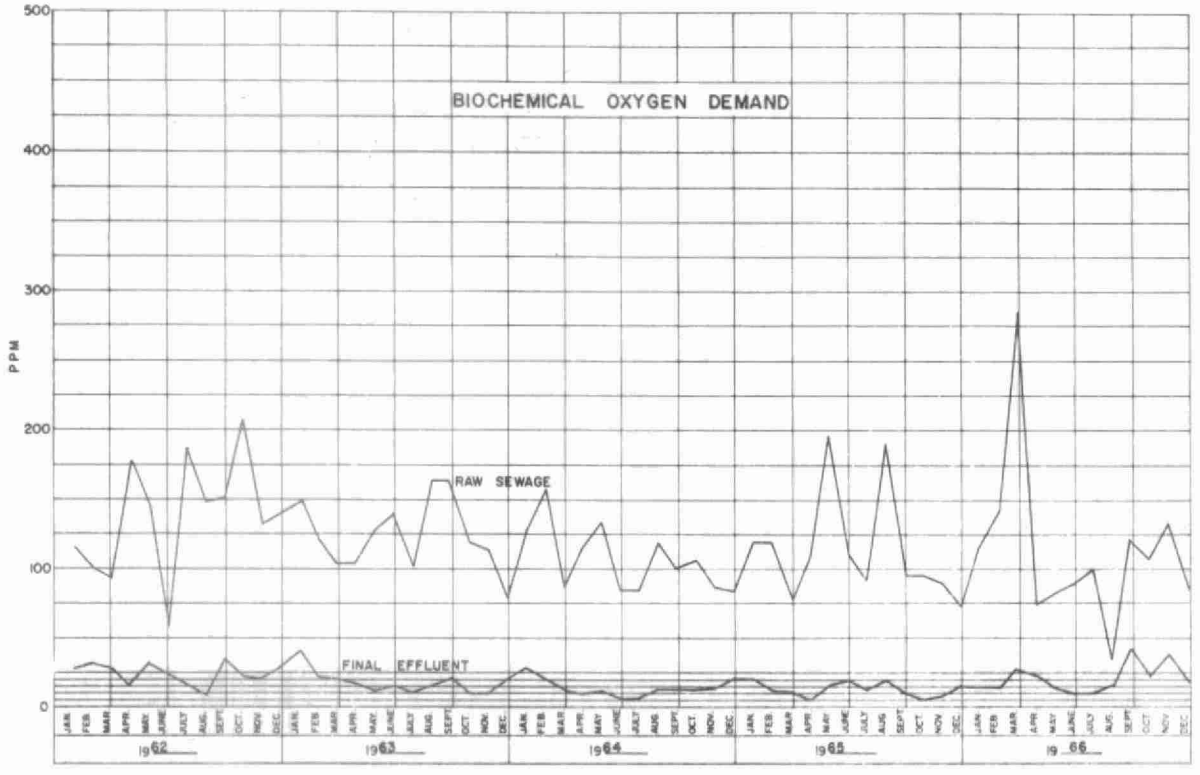

AVERAGE DAILY FLOW
(FLOW METER CORRECTED IN 1965)
M.G.D.
2.00
1.80
1.60
1.40
1.20
1.00
.80
.60
.40
.20
0
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT OCT. NOV. DEC.
1962
JAN. FEB. MAR APR. MAY JUNE JULY ALG. SEPT OCT. NOV. DEC.
1963
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT OCT. NOV. DEC.
1964
JAN. FEB. MAR APR MAY JUNE JULY AUG. SEPT OCT NOV. DEC.
1965
JAN. FEB MAR APR. MAY JUNE JULY AUG SEPT OCT. NOV DEC.
1966

FLOW SUMMARY
(EAST SIDE PLANT)

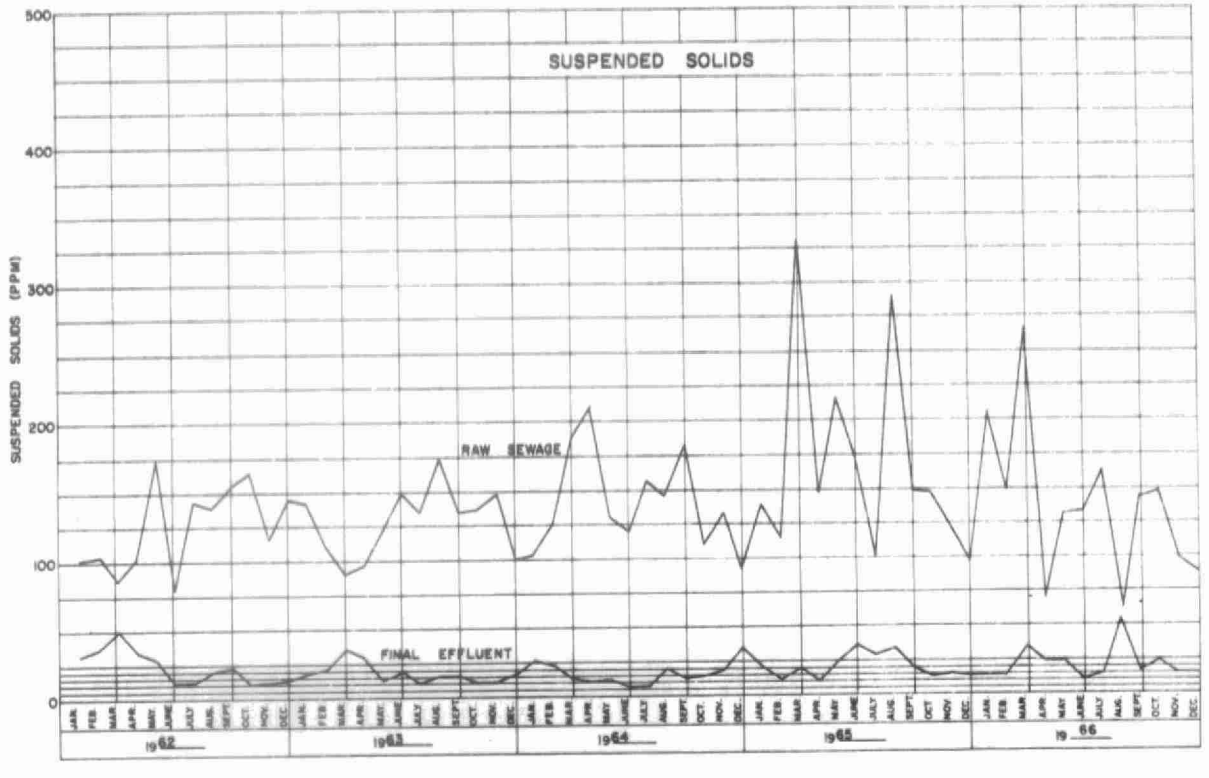
Month	Total Flow MG	Max. Day Flow MG	Average Daily Flow MG	Max. Rate Flow MG	Min. Day Flow MG
January	24.651	1.500	0.795	2.085	.630
February	31.297	1.950	1.118	2.300	.585
March	42.393	2.160	1.368	2.300	.720
April	25.976	1.515	0.866	2.500	.615
May	29.817	1.590	0.962	2.300	.645
June	22.866	1.410	0.762	2.060	.545
July	21.566	1.000	0.696	2.000	.603
August	23.428	1.080	0.756	2.600	.570
September	19.713	1.035	0.657	2.200	.490
October	16.015	0.783	0.517	2.350	.427
November	31.063	2.525	1.035	4.200	.518
December	36.734	3.020	1.184	4.102	.510
Total	325.519	-	-	-	-
Average	27.127	-	-	-	-


1966 OPERATING RESULTS
(BOD)
1965 RAW
RAW SEWAGE
FINAL EFFLUENT
P.P.M.
% EQUAL TO OR GREATER THAN
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
15
10
9
8
7
6
5
4
3
2
1
2
5
10
15
20
30
40
50
60
70
80
85
90
95
98


1966 OPERATING RESULTS
(SUSPENDED SOLIDS)
1965 RAW
RAW SEWAGE
FINAL EFFLUENT
PPM
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
15
10
9
8
7
6
5
4
3
2
1
2
5
10
15
20
30
40
50
60
70
80
85
90
95
98
% EQUAL TO OR GREATER THAN



MONTHLY VARIATIONS

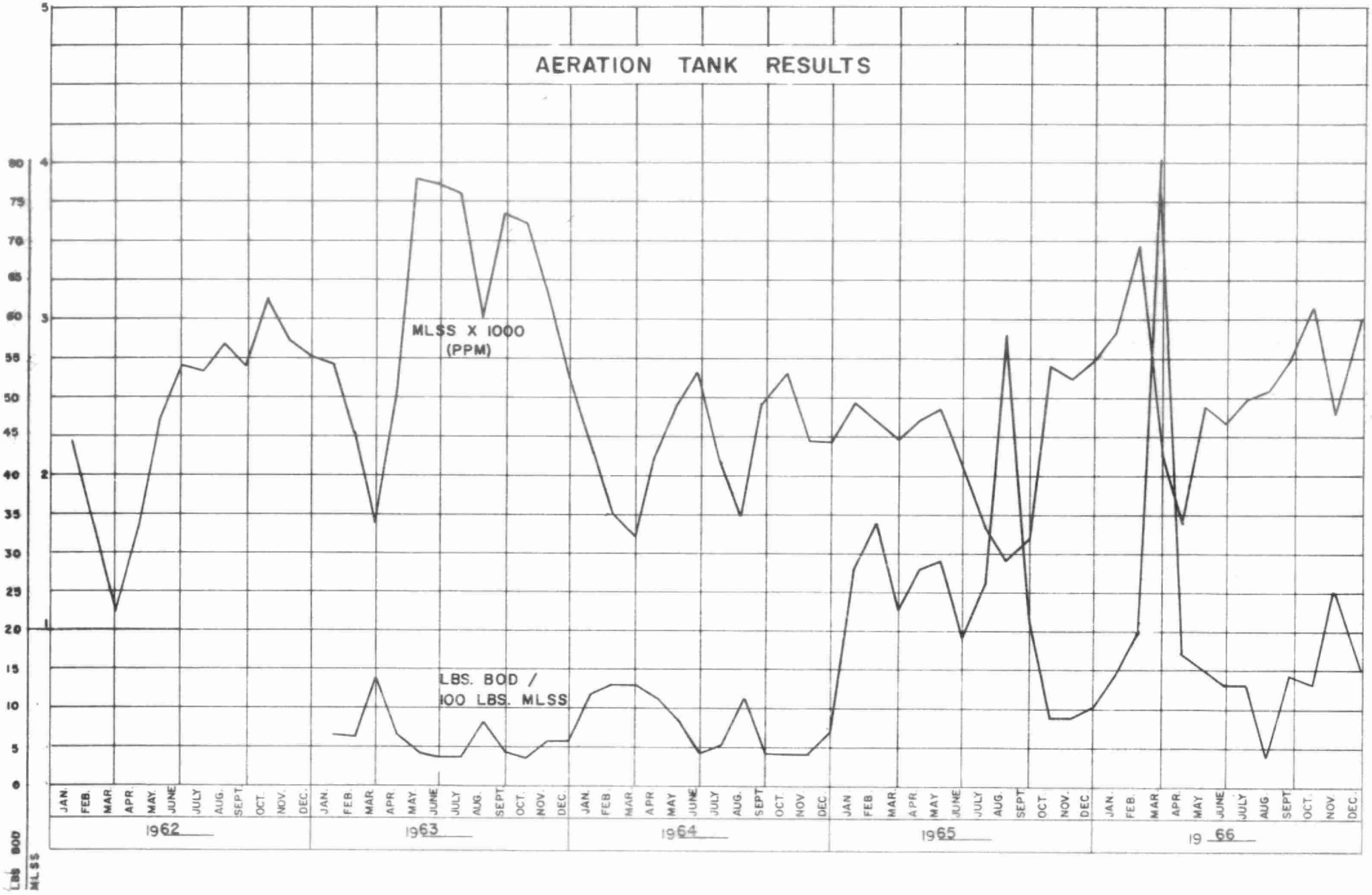


GRIT, B.O.D AND S.S. REMOVAL

MONTH	B. O. D.				S. S.				GRIT REMOVAL CU. FT.
	INFLUENT P.P.M.	EFFLUENT P.P.M.	% REDUCTION	TONS REMOVED	INFLUENT P.P.M.	EFFLUENT P.P.M.	% REDUCTION	TONS REMOVED	
JAN.	116	14	88.0	12.6	209	28	86.5	22.3	12
FEB.	135	13	90.5	19.1	149	25	83.0	19.4	12
MAR.	274	26	90.5	52.6	263	32	88.0	49.0	24
APR.	74	22	70.5	6.8	68	22	67.5	6.0	-
MAY	83	12	85.5	10.6	130	22	83.0	16.1	26
JUNE	88	9	90.0	9.0	131	10	92.5	13.8	8
JULY	100	10	90.0	9.7	162	13	92.0	16.1	-
AUG.	32	15	53.0	2.0	60	51	15.0	1.0	18
SEPT.	120	41	66.0	7.8	143	15	89.5	12.6	8
OCT.	107	22	79.5	6.8	147	22	85.0	10.0	10
NOV.	130	36	72.5	14.6	96	14	85.5	12.7	26
DEC.	86	19	78.0	12.3	88	14	84.0	13.6	80
TOTAL	-	-	-	149.7	-	-	-	187.2	224
AVG.	112	20	82.0	12.5	137	22	84.0	15.6	19

COMMENTS

The BOD and suspended solids of 112 ppm and 137 ppm in the raw sewage respectively are higher than those of the West Side sewage, but are still somewhat below those anticipated in normal domestic sewage. The treatment efficiency of 82% BOD reduction and 84% suspended solids reduction is adequate when taking into account the general condition of the plant and the extreme flow variations in the raw sewage. However, OWRC objectives for effluent of 15 ppm BOD and SS were exceeded 50% of the time for BOD and 60% of the time for SS. The quantity of grit removed while below normal has not varied appreciably from the 1965 values.


AERATION TANK RESULTS
MLSS X 1000
(PPM)
LBS. BOD /
100 LBS. MLSS
LBS BOD
MLSS
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT OCT. NOV. DEC.
1962
1963
1964
1965
1966

AERATION SECTION

MONTH	* B.O.D. P.P.M.	M.L.S.S. P.P.M.	LBS. BOD. PER 100 LBS. M. L. S. S.
JANUARY	116	2921	14
FEBRUARY	135	3487	20
MARCH	274	2131	80
APRIL	74	1692	17
MAY	83	2443	15
JUNE	88	2348	13
JULY	100	2490	13
AUGUST	32	2531	4
SEPTEMBER	120	2744	14
OCTOBER	107	3090	13
NOVEMBER	130	2396	25
DECEMBER	86	2945	16
TOTAL	-	-	-
AVERAGE	112	2602	20

* Raw Sewage BOD - no primaries

COMMENTS

The mixed liquor suspended solids were maintained during the past year at a slightly higher level than the previous year, resulting in a slightly lower loading in terms of pounds of BOD per hundred pounds of mixed liquor suspended solids. Once again the aeration tank loading was in the normal range for an activated sludge plant.

DIGESTER OPERATION

MONTH	SLUDGE TO DIGESTERS			SLUDGE FROM DIGESTERS			GAS PRODUCED 1000'S Cu. Ft.
	1000'S CU FT.	% SOLIDS	% VOL. MAT.	1000'S CU. FT.	% SOLIDS	% VOL. MAT	
JAN.	14.90	2.08	1.51	3.20	-	-	101.39
FEB.	13.78	1.82	1.45	2.24	-	-	94.14
MAR.	13.30	1.76	1.41	0.64	-	-	69.38
APR.	3.16	1.50	1.21	-	-	-	*
MAY	14.02	2.28	1.87	1.60	-	-	+62.05
JUNE	13.78	2.78	2.16	3.52	-	-	100.84
JULY	14.90	3.00	2.22	1.60	-	-	72.57
AUG.	16.02	2.10	1.51	8.01	-	-	68.81
SEPT.	14.42	2.34	1.72	6.09	-	-	63.85
OCT.	14.58	2.10	1.63	4.49	-	-	88.08
NOV.	14.10	1.92	1.47	5.77	-	-	75.82
DEC.	14.74	1.72	1.32	4.17	-	-	72.11
TOTAL	161.70	-	-	41.33	-	-	**982.02
AVG.	13.48	2.12	1.62	3.44	-	-	81.84

* Meter out of service.
\+ 19 days data.
** Total prorated on 323 days data

COMMENTS

A total of 161,700 cubic feet of waste activated sludge was pumped to the digester in 1966. There was a reduction in the percent solids in the raw sludge and also a reduction in the percent volatile matter. There was little change in the gas production over the previous year.

CONCLUSIONS

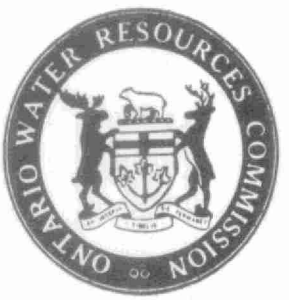
The West Side plant continued to produce a satisfactory effluent in 1966. There was no reduction in the degree of hydraulic overloading during the past year, with the plant being hydraulically overloaded (DWF) 47% of the time.

Considerable hydraulic overloading of the East Side plant continued to present a pollution problem. In addition to considerable bypassing of raw sewage, the plant is generally inadequate to treat average daily flow properly.

Inadequate influent works, flow metering and sludge return pumps and the poor condition of the aeration tanks and equipment are a few of the outstanding problems at this plant.

RECOMMENDATIONS

It is strongly recommended that temporary repairs be made to correct outstanding deficiencies at the East Side plant, thus ensuring adequate sewage treatment facilities for the east side of the City until such time as these facilities are either extended or replaced.


ONTARIO WATER RESOURCES COMMISSION